

**APPENDIX VI**

Serial No.: 09/955,604

Docket No.: 49933US032

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Amendment and Response Under 37 C.F.R. §1.116 filed with the U.S. Patent and Trademark Office on September 23, 2002 via facsimile transmission.

**OFFICIAL**  
Expedited Examining Procedure  
Group 1722

**PATENT**  
Docket No. 49933US032

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): Timothy L. HOOPMAN et al.)      Group Art Unit: 1722  
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Serial No.: 09/955,604                                )      Examiner: Joseph S. Leyson  
Confirmation No.: 1214                                )  
    )  
Filed: 19 September 2001                                )  
    )  
For: TOOLS TO MANUFACTURE ABRASIVE ARTICLES

**AMENDMENT AND RESPONSE UNDER 37 CFR §1.116**

Assistant Commissioner for Patents  
**Attn: BOX AF**  
Washington D.C. 20231

Dear Sir:

In response to the Final Office Action mailed 22 July 2002, please amend the above-identified application as follows:

**In the Claims**

Please cancel claims 56, 57, 63, 64, 113, 114, 133, 137, 144, and 149-153.

**Remarks**

The Final Office Action mailed 22 July 2002 has been received and reviewed. Claims 56, 57, 63, 64, 113, 114, 133, 137, 144, and 149-153 having been cancelled, the pending claims are claims 23, 24, 30-32, 89, 90, 92, 93, 134-136, 138-143, and 145-148.

Reconsideration and withdrawal of the rejections in view of the cancellation of the claims above-indicated and the following comments are respectfully requested.

**Obviousness-Type Double Patenting Rejection**

Claims 23, 24, 30-32, 89-90, 92, 93 and 133-148 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 17, 20, 21, 25-28, 33-54, 94-96 and 98-111 of co-pending application No. 09/520,032 in view of Rochlis (U.S. Patent No. 3,312,583). The cancellation of claims 133, 137, and 144 renders the rejection as to these claims moot. As to the remaining claims, upon an indication of otherwise allowable subject matter and in the event this rejection is maintained, Applicants will provide an appropriate response.

**The 37 U.S.C. §1.75 Objection**

The Examiner objected to claims 133, 137, and 144 under 37 U.S.C. §1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicants do not agree that claims 133, 137, and 144 are of improper dependent form. However, in the interest of furthering prosecution of the application, these claims have been cancelled.

Withdrawal of the objection is respectfully requested.

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**The 35 U.S.C. §102 Rejection**

The Examiner rejected claims 23, 30, 31, 89, 92, and 133-148 under 35 U.S.C. §102(b) as being anticipated by Rochlis (U.S. Patent No. 3,312,583).

Applicants submit that the cancellation of claims 133, 137, and 144 renders the rejection as to these claims moot. As to claims 23, 30, 31, 89, 92, 134-136, 138-143, and 145-148, Applicants respectfully traverse this rejection.

Applicants' invention is directed to a production tool for manufacturing an abrasive article. The production tool includes a plurality of cavities, each of which has a single opening. Various embodiments of the production tool are claimed.

**Claims 23, 30, 31, 89, 92, 134-136, 138-143, and 145-148 are not anticipated under 35 U.S.C.**

**§ 102(b) by Rochlis '583.**

The standard for anticipation is one of strict identity. "It is axiomatic that for prior art to anticipate under § 102 it has to meet every element of the claimed invention . . ."

Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987).

"In determining that quantum of prior art disclosure which is necessary to declare an applicant's invention 'not novel' or 'anticipated' within section 102, the stated test is whether a reference contains an 'enabling disclosure' . . ."In re Hoeksema, 399 F.2d 269, 158 U.S.P.Q. 596, 600 (CCPA 1968). "A reference contains an 'enabling disclosure' if the public was in possession of the claimed invention before the date of invention." M.P.E.P. § 2121.01.

**1. Rochlis '583 does not disclose every element of the claimed invention.**

Each of Applicants' independent claims recites a production tool for manufacturing an abrasive article having a plurality of cavities, each of which has a single

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opening. In contrast, the mold disclosed in Rochlis '583 requires a laminate construction with multiple openings (i.e., openings between the layers in addition to the opening through which mold material enters the cavity) (col. 3, lines 40-49). Specifically, these openings between the mating surfaces of the laminations allow that "air or gas evolved in the molding or hardening procedure may escape" (col. 13, lines 70-73). There is no disclosure in Rochlis '583, however, that any cavity, let alone each of the cavities, has only a single opening. That is, there is no disclosure that Rochlis '583 has laminated mold constructions without openings between the mating surfaces of the laminations. Furthermore, there is no disclosure that Rochlis '583 has mold constructions with a single opening in each cavity.

Applicants also traverse the assertion that the vent openings are not part of the mold cavities. Rochlis '583 clearly states that the vent openings are provided to prevent entrapment of gas "in the mold cavity in a manner to possibly alter the shape or size of the pile elements" (column 3, lines 47-48). In other words, the vent openings allow gas to escape from the cavities to allow them to fill properly. As a result, any assertion that the vent openings are not located in the cavities is simply not supported by Rochlis '583 and must be withdrawn.

## **2. Rochlis '583 does not contain an enabling disclosure.**

As stated above, Rochlis '583 does not disclose a production tool with any cavity, let alone each of a plurality of cavities, having only a single opening. Furthermore, Rochlis '583 does not teach how one of skill in the art would make a production tool for manufacturing an abrasive article with even one cavity having a single opening. Rochlis '583 is enabling for a laminated mold construction that includes openings between the mating surfaces of the laminations. There is no enabling disclosure in Rochlis '583 of how one of skill in the art would make a mold or production tool with only a single opening.

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**The 35 U.S.C. §103 Rejection**

The Examiner rejected claims 23, 24, 31, 32, 89, 90, 92, 93, and 133-148 under 35 U.S.C. §103(a) as being unpatentable over Rochlis (U.S. Patent No. 3,312,583).

Applicants submit that the cancellation of claims 133, 137, and 144 renders the rejection as to these claims moot. As to claims 23, 24, 31, 32, 89, 90, 92, 93, 134-136, 138-143, and 145-148, Applicants respectfully traverse this rejection.

**Claims 23, 24, 31, 32, 89, 90, 92, 93, 134-136, 138-143, and 145-148 are not obvious under 35 U.S.C. § 103 over Rochlis '583.**

"When applying 35 U.S.C. § 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
- (D) Reasonable expectation of success is the standard with which obviousness is determined." M.P.E.P. § 2141 (citations omitted).

**1. Rochlis '583 does not teach or suggest the claimed invention.**

Rochlis '583 does not explicitly teach or suggest a production tool with any cavity having only a single opening, let alone each of a plurality of cavities having only a single opening. Furthermore, Rochlis '583 does not explicitly teach or suggest how one of skill in the art would make a production tool for manufacturing an abrasive article with a cavity having a single opening in each cavity. Rochlis '583 teaches how to make a laminated mold construction with openings between the mating surfaces of the laminations. From the disclosure of Rochlis '583, one of skill in the art would not know how to make a mold with only a single opening in each cavity.

Applicants also submit that the Office Action fails to establish a *prima facie* case of obviousness as no motivation is identified as to why one of skill in the art would modify the teachings of Rochlis '583 to reach the claimed invention.

**2. When considered as a whole, Rochlis '583 teaches away from the claimed invention.**

"It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 353 F.2d 238, 147 U.S.P.Q. 391, 393 (CCPA 1965). A single statement in the prior art reference should not be taken out of context and relied upon with the benefit of hindsight to show obviousness; rather, a reference should be considered as a whole. Bausch & Lomb, Inc. v. Barnes-Hind/Hycrocurve, Inc., 796 F.2d 443, 230 U.S.P.Q. 416, 419-420 (Fed. Cir. 1986); cert. denied, 484 U.S. 823 (1987), on remand, 10 U.S.P.Q. 2d 1929 (N.D. Calif. 1989).

One of skill in the art would not be motivated to make a mold or production tool for manufacturing an abrasive article with a single opening as a result of the teachings of Rochlis '583. In fact, one of skill in the art would expect that a mold with only a single opening in each cavity would not be functional since the openings between the mating surfaces of the laminations allow that "air or gas evolved in the molding or hardening procedure may escape" (col. 13, lines 70-73). In effect, Rochlis '583 teaches away from Applicants' invention when its disclosure is considered as a whole.

**3. It is impermissible to use hindsight as an obviousness test.**

Applicants respectfully submit that the use of Rochlis '583 alone in an obviousness rejection can only occur by the impermissible use of hindsight reasoning. In order

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to establish a *prima facie* case of obviousness, the references must teach or suggest all the claim limitations. Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 231 U.S.P.Q. 81 at 93 ("Focusing on the obviousness of substitutions and differences instead of on the invention as a whole, . . . was a legally improper way to simplify the difficult determination of obviousness."). One cannot "simply [to] engage in a hindsight reconstruction of the claimed invention, using the Applicant's structure as a template and selecting elements from references to fill the gaps." In re Gorman, 933 F2d 982, 18 U.S.P.Q.2d 1885, 1888 (Fed. Cir. 1991). Further, both the suggestion for combining the teachings of the prior art to make the invention and the reasonable likelihood of its success must be founded in the prior art and not in the teachings of Applicants' disclosure. In re Dow Chem., 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988). Here, the cited art neither suggests the combination of its teachings nor suggests the reasonable likelihood that such a combination would result in the present invention.

Applicants respectfully submit that the teachings of Rochlis '583 are woefully inadequate to teach or suggest any mold or production tool for manufacturing an abrasive article, wherein the tool has a plurality of cavities, each of which as a single opening. Impermissible hindsight was used to sift through the prior art in order to reconstruct the claimed invention using Applicants' specification as a template for selecting a particular teaching.

Furthermore, there is simply no teaching, suggestion, or incentive in Rochlis '583 to provide a motivation to modify its teachings to provide a mold or tool with cavities having only single openings, specifically in view of the fact that Rochlis '583 emphasizes the importance of the openings between the mating surfaces of the laminations (they allow for air or gas to be evolved in the molding or hardening procedure, col. 13, lines 70-73).

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### Summary

For the many foregoing reasons, it is respectfully submitted that the pending claims 23, 24, 30-32, 89, 90, 92, 93, 134-136, 138-143, and 145-148 are in condition for allowance and notification to that effect is respectfully requested.

The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for  
HOOPMAN et al.

By

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CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Attn: Box AF, Washington, D.C. 20231, on this 23<sup>rd</sup> day of September, 2002, at 3:57 p.m. (Central Time).

By: Rachel Gaylord Gebhardt

Name: Rachel Gaylord-Gebhardt

**APPENDIX A - SPECIFICATION/CLAIM AMENDMENTS INCLUDING NOTATIONS  
TO INDICATE CHANGES MADE**

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Docket No.: 49933 US 032**

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Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted. The amendments have also been marked in bold typeface.

**In the Claims**

For convenience, all pending claims are shown below.

23. A production tool suitable for use in manufacturing an abrasive article comprising a first, second, and third plurality of cavities, wherein the first plurality of cavities each have a first geometric shape and first plurality of angles forming the geometric shape, the second plurality of cavities each have a second geometric shape and second plurality of angles forming the geometric shape, and the third plurality of cavities each have a third geometric shape and third plurality of angles forming the geometric shape, wherein at least one of the angles of the first plurality is different from all of the angles of the second and third plurality of angles, wherein at least one of the angles of the second plurality is different from all of the angles of the first and third plurality of angles, and wherein each of the cavities has a single opening.
  
24. A production tool suitable for use in manufacturing an abrasive article comprising a first, second, third, and fourth plurality of cavities, wherein the first plurality of cavities each have a first geometric shape and first plurality of angles forming the geometric shape, the second plurality of cavities each have a second geometric shape and second plurality of angles forming the geometric shape, the third plurality of cavities each have a third geometric shape and third plurality of angles forming the geometric shape, and the fourth plurality of cavities each have a fourth geometric shape and fourth plurality of angles forming the geometric shape, wherein at least one of the angles of the first plurality is different from all of the angles of the second, third, and fourth plurality of angles, wherein at least one of the angles of the second plurality is different from all of the angles of the first, third, and fourth plurality of angles, wherein at least one of the angles of the third plurality is different from all of the angles of the first, second, and fourth plurality of angles, and wherein at least one of the angles of the fourth plurality is different from all of the angles of the first, second, and third plurality of angles.

different from all of the angles of the first, second, and fourth plurality of angles, and wherein each of the cavities has a single opening.

30. A production tool suitable for use in manufacturing an abrasive article comprising a plurality of cavities defining at least a first, a second, and a third group, wherein a first group of cavities has a first shape, a second group of cavities has a second shape, a third group of cavities has a third shape, wherein the first, second, and third shapes are all different, and wherein each of the cavities has a single opening.

31. A production tool suitable for use in manufacturing an abrasive article comprising a plurality of cavities defining at least a first, a second, and a third group, wherein a first group of cavities has a first size, a second group of cavities has a second size, a third group of cavities has a third size, wherein the first, second, and third sizes are all different, and wherein each of the cavities has a single opening.

32. A production tool suitable for use in manufacturing an abrasive article comprising a plurality of cavities defined by substantially distinct and discernible boundaries which include substantially specific dimensions, wherein a first cavity has specific first dimensions, a second cavity has specific second dimensions, and a third cavity has specific third dimensions, each of said cavities has a boundary defined by at least four planar surfaces wherein adjacent planar surfaces of one cavity meet at an edge to define an angle of intersection therebetween, wherein at least one angle of intersection of said first cavity is different from all the angles of intersection of said second and third cavities, wherein at least one angle of intersection of said second cavity is different from all the angles of intersection of said first and third cavities, and wherein each of the cavities has a single opening.

56. Cancelled

- 57. Cancelled
- 63. Cancelled
- 64. Cancelled

89. The production tool of claim 23, wherein the first geometric shape includes a base and first plurality of base edge lengths, wherein the second geometric shape includes a base and second plurality of base edge lengths, wherein the third geometric shape includes a base and third plurality of base edge lengths, wherein at least one of the base edge lengths of the first plurality is different from all of the base edge lengths of the second and third plurality of base edge lengths, and wherein at least one of the base edge lengths of the second plurality is different from all of the base edge lengths of the first and third plurality of base edge lengths.

90. The production tool of claim 24, wherein the first geometric shape includes a base and first plurality of base edge lengths, wherein the second geometric shape includes a base and second plurality of base edge lengths, wherein the third geometric shape includes a base and third plurality of base edge lengths, wherein the fourth geometric shape includes a base and fourth plurality of base edge lengths, wherein at least one of the base edge lengths of the first plurality is different from all of the base edge lengths of the second, third, and fourth plurality of base edge lengths, wherein at least one of the base edge lengths of the second plurality is different from all of the base edge lengths of the first, third, and fourth plurality of base edge lengths, and wherein at least one of the base edge lengths of the third plurality is different from all of the base edge lengths of the first, second, and fourth plurality of base edge lengths.

92. A production tool suitable for use in manufacturing an abrasive article comprising a first, second, and third plurality of cavities, wherein the first plurality of cavities each have a first geometric shape including a base and first plurality of base edge lengths forming the base of the geometric shape, the second plurality of cavities each have a second geometric shape including a

base and second plurality of base edge lengths forming the base of the geometric shape, and the third plurality of cavities each have a third geometric shape including a base and third plurality of base edge lengths forming the base of the geometric shape, wherein at least one of the base edge lengths of the first plurality is different from all of the base edge lengths of the second and third plurality of base edge lengths, wherein at least one of the base edge lengths of the second plurality is different from all of the base edge lengths of the first and third plurality of base edge lengths, and wherein each of the cavities has a single opening.

93. A production tool suitable for use in manufacturing an abrasive article comprising a first, second, third, and fourth plurality of cavities, wherein the first plurality of cavities each have a first geometric shape including a base and first plurality of base edge lengths forming the base of the geometric shape; the second plurality of cavities each have a second geometric shape including a base and second plurality of base edge lengths forming the base of the geometric shape, the third plurality of cavities each have a third geometric shape including a base and third plurality of base edge lengths forming the base of the geometric shape, and the fourth plurality of cavities each have a fourth geometric shape including a base and fourth plurality of base edge lengths forming the base of the geometric shape, wherein at least one of the base edge lengths of the first plurality is different from all of the base edge lengths of the second, third, and fourth plurality of base edge lengths, wherein at least one of the base edge lengths of the second plurality is different from all of the base edge lengths of the first, third, and fourth plurality of base edge lengths, wherein at least one of the base edge lengths of the third plurality is different from all of the base edge lengths of the first, second, and fourth plurality of base edge lengths, and wherein each of the cavities has a single opening.

113. Cancelled

114. Cancelled

133. Cancelled

134. The production tool of claim 92, wherein the first, second, and third geometric shapes are pyramidal.

135. The production tool of claim 92, wherein the first, second, and third geometric shapes are truncated pyramidal.

136. A production tool suitable for use in manufacturing an abrasive article comprising a first, second, and third row of cavities, wherein the cavities each have a geometric shape including a base and a plurality of base edge lengths forming the base of the geometric shape, wherein at least one of the base edge lengths of the first row of cavities is different from all the base edge lengths of the second and third rows of cavities, wherein at least one of the base edge lengths of the second row of cavities is different from all the base edge lengths of the first and third row of cavities, and wherein each of the cavities has a single opening.

137. Cancelled

138. The production tool of claim 136, wherein the geometric shape of the cavities in the first, second, and third rows are pyramidal.

139. The production tool of claim 136, wherein the geometric shape of the cavities in the first, second, and third rows are truncated pyramidal.

140. The production tool of claim 136, wherein the first, second, and third rows of cavities extend in parallel to one another.

141. The production tool of claim 136, wherein the base edge lengths of the first row of cavities have a first base edge length extending parallel to the first row and a second base edge length extending perpendicular to the first row, and wherein the second base length of all the cavities in the first row is the same.
142. The production tool of claim 141, wherein at least some of the first base lengths of the cavities in the first row are different from one another.
143. A production tool suitable for use in manufacturing an abrasive article comprising first, second, and third cavities, wherein the first cavity has a first geometric shape including a base and a first plurality of base edge lengths forming the base of the geometric shape, the second cavity has a second geometric shape including a base and a second plurality of base edge lengths forming the base of the geometric shape, and the third cavity has a third geometric shape including a base and a third plurality of base edge lengths forming the base of the geometric shape, wherein at least one of the base edge lengths of the first plurality of base edge lengths is different from all the base edge lengths of the second and third plurality of base edge lengths, wherein at least one of the base edge lengths of the second plurality of base edge lengths is different from all the base edge lengths of the first and third plurality of base edge lengths, and wherein each of the cavities has a single opening.
144. Cancelled
145. The production tool of claim 143, wherein the geometric shapes of the first, second, and third cavities are pyramidal.
146. The production tool of claim 143, wherein the geometric shapes of the first, second, and third cavities are truncated pyramidal.

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**147.** The production tool of claim 143, wherein the first cavity is located adjacent to the second cavity.

**148.** The production tool of claim 147, wherein the second cavity is located adjacent to the third cavity.

**149.** Cancelled

**150.** Cancelled

**151.** Cancelled

**152.** Cancelled

**153.** Cancelled